REMARKS:

Reexamination and reconsideration of the subject application are respectfully requested in light of the remarks which follow.

STATUS OF THE CLAIMS

Claims 1-4, 7-9, 14-17, 23, 24 and 26 have been cancelled. Claims 5, 6, 11, 12, 18, 19, 25, 27, 28 and 29 have been amended, primarily to correct typographical errors. New claims 30-33 have been added. New claims 30 and 31 find exemplary support in original claim 26. New claims 32 and 33 find exemplary support in original claim 5, the Specification at paragraph [0111], and Tables 3-6. No new matter has been added.

ELECTION OF SPECIES

The Office Action stated that Applicants had previously elected the species of (NH2-GLY-THR-PRO-GLN-ILE-ALA-GLY-ARG-GLY-VAL-VAL)4-(Lys)2-Lys-β-Ala-COOH. This is incorrect. Applicants elected the species of (NH_2-Gly-Thr-Pro-Gly-Pro-Gln-Gly-Ile-Ala-Gly-Gln-Arg-Gly-Val-Val)$_4$-(Lys)$_2$-Lys-β-Ala-COOH (MAP4); see the paper filed May 12, 2006.

REJECTIONS UNDER 35 U.S.C. § 112, FIRST PARAGRAPH

Claims 3-6, 9-13 and 18-29 were rejected under the first paragraph of 35 U.S.C. §112 for various issues. For at least the following reasons, these rejections are respectfully traversed.

The Office Action asserted that the Specification did not provide an adequate written description for the claimed subject matter. For example, the Office Action asserts that the Specification does not adequately describe MAP structures wherein Z is a polylysine or polyornithine. While this position is believed to be improper, the claims have nevertheless been amended to remove the recitation of polylysine and polyornithine as members of Z solely to expedite prosecution of the subject application. Hence, this issue has been rendered moot.

The Office Action also asserts that there is not an adequate written description of members of R other than the particular species set forth in the examples of the Specification.

More particularly, the Office Action takes the position that the Specification is defective because it does not explicitly enumerate an exhaustive list of examples MAP structures containing peptides up to 100 amino acids in length, each containing the peptide recited as being present in each R moiety (i.e., SEQ ID NO:1 – GTPGPQGIAGQRGVV). Such an onerous burden, however, is outside of any reasonable requirement to meet the written description standard in the current situation. The Specification already describes dozens of examples, including MAP2, MAP4, MAP8 and MAP16 structures containing R moieties which include the active peptide of SEQ ID NO:1, the MAP structures being covalently bound to a broad range of substrates. These structures are demonstrated to provide, for example, improved cell adhesion and cell proliferation. Similar success is demonstrated in numerous examples of MAP structures containing other active peptides, such as RGD and REDV peptides. These peptides are the active binding regions from extracellular matrix proteins such as fibronectin (which contains the RGD and REDV peptide sequences) and collagen (which contains the GTPGPQGIAGQRGVV peptide sequence)(see the Specification, *e.g.*, at paragraph [0023]). Thus, these peptides, including GTPGPQGIAGQRGVV, have already been shown to function within much larger proteins. To require further demonstration of the ability of GTPGPQGIAGQRGVV to function within peptides up to 100 amino acids, which appears to be the position set forth in the Office Action, is simply unnecessary.

On page 6 of the Office Action, a second basis of rejection under 35 U.S.C. §112, first paragraph, is set forth. Here various claims are rejected because of the alleged introduction of new matter with respect to the claim recitation of β-alanine and polyornithine as possibilities for Z. These terms have been deleted from the claims in order to expedite prosecution of the application.

For at least the above reasons, withdrawal of the rejections based on the first paragraph of 35 U.S.C. §112 is requested.

REJECTION UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

Claims 3-5, 9-13 and 19-29 were rejected under 35 U.S.C. §112, second paragraph, for alleged indefiniteness. This rejection is respectfully traversed.

The Office Action asserts that, with respect to Claim 5, the length of R_1 to R_{15} is unclear. As amended, Claim 5 recites that "each R when present in the MAP structure

comprises a total of up to about 100 amino acids, and wherein each R_1 to R_{16} comprises GTPGPQGIAGQRGVV (SEQ ID NO:1)." Hence, each R has a length up to 100 amino acids and includes the peptide sequence GTPGPQGIAGQRGVV.

It has also been asserted that claim 25 is unclear because not all of the recited MAP structures contain the sequence GTPGPQGIAGQRGVV. Claim 25 has been amended so as to only recite those MAP structures which include the peptide sequence GTPGPQGIAGQRGVV.

Accordingly, withdrawal of the rejection under 35 U.S.C. §112, second paragraph, is believed to be in order.

OBJECTION UNDER 37 C.F.R. §1.75

Claims 6, 9 and 23 were objected to under 37 C.F.R. §1.75 as being substantial duplicates of Claims 4 and 22. By the present amendment Claims 4, 9 and 23 have been cancelled. Therefore, this objection has been rendered moot and should be withdrawn.

REJECTIONS UNDER 35 U.S.C. § 103

Claims 3-6, 9-13and 18-29 were rejected under 35 U.S.C. §103 as being unpatentable over Dang et al. (U.S. Published Application No. 2003/0113478) in view of Tam ("Synthesis and Applications of Branched Peptides and Immunological Methods and Vaccines" in Peptides: Synthesis, Structures and Application, B. Sutte, (ed), Academic Press, San Diego, Calif., pp. 455-500 (1995)). In addition, Claims 3, 5, 10-13 and 18-25 were rejected under 35 U.S.C. §103 as being unpatentable over Bhatnagar (WO 91/02537) in view of Tam. These rejections are respectfully traversed.

Independent claim 5 recites a composition of matter for the active structure MAP-S. MAP is an organic molecule covalently bound to a substrate S. MAP has the general structure $(R)_{n+1}$-$(Z)_n$-X- , wherein X is a linking group, Z is lysine or ornithine, and each R when present in the MAP structure comprises a total of up to about 100 amino acids, and wherein each R_1 to R_{16} comprises GTPGPQGIAGQRGVV (SEQ ID NO:1). The R moiety may contain cell-binding ligands, anti-inflammatory structures, anti-thrombogenic structures, growth factor structures, or adhesive or adhesion barrier structures.

Dang et al. is purported to describe covalently coating a ePTFE graft material with the peptide GTPGPQGIAGQRGVV. This coated material appeared to promote the migration and proliferation of healthy endothelial cells.

Bhatnagar is purported to describe the covalent attachment of the peptide GTPGPQGIAGQRGVV to a substrate. Bhatnagar indicates that there may be enhanced binding of vertebrate cells to such a coated substrate.

Neither Dang et al. nor Bhatnagar describes or suggests the use of a MAP structure to allow covalent attachment of the peptide GTPGPQGIAGQRGVV to a substrate. However, the Office Action has asserted that it would have been obvious to use a MAP structure in the coated materials of Dang et al. or Bhatnagar in view of Tam. In particular, the Office Action asserts that Tam "states, ***as inhibitors***, branched peptides with clustered positive charges can lead to stronger binding than their monomers by allowing multiple points of contact" (emphasis added). The Office Action concludes, therefore, that "[i]t would have been obvious to one of ordinary skill in the art to incorporate the peptide GTPGPQGIAGQRGVV into a multimeric peptide structure (MAP) because branched peptides with clustered positive charges can lead to stronger binding than their monomers by allowing multiple points of contact and MAPs have increased binding to cell surfaces, relative to the monomer."

None of the applied art, either alone or in combination, would have suggested the claimed subject matter. More particularly, in addition to the aforementioned deficiencies of Dang et al. and Bhatnagar, Tam et al. teaches away from any relevant modification of those documents.

As discussed above, the MAP-S structures recited by the present claims function as cell-binding ligands, anti-inflammatory structures, anti-thrombogenic structures, growth factor structures, or adhesive or adhesion barrier structures. That is, they act as agonists to promote the function that the peptide GTPGPQGIAGQRGVV would normally have as presented *in vivo*. Tam, on the other hand, teaches that including a peptide in a MAP structure produces ***an inhibitor*** due to branched peptides with clustered positive charges. Thus, from the teachings of Tam, one would expect that including GTPGPQGIAGQRGVV in a MAP structure would produce an inhibitor rather than the agonists recited by the present claims. Clearly, the applied art would not have guided one to the claimed subject matter.

For at least the above reasons, withdrawal of the rejections based on 35 U.S.C. §103 is respectfully requested.

CONCLUSION:

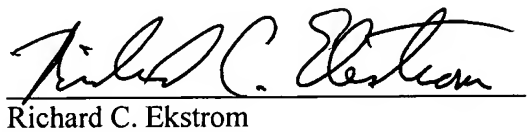
From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order and such action is earnestly solicited.

In the event that there are any questions concerning this amendment or the application in general, the Examiner is respectfully requested to telephone the undersigned so that prosecution of the application may be expedited.

Respectfully submitted,

BELL & ASSOCIATES

Date: July 9, 2008

By: 
Richard C. Ekstrom
Registration No. 37,027

58 West Portal Ave., Suite 121
San Francisco, CA 94127
(650) 461-9211